

REMARKS/ARGUMENTS

In response to the Office Action mailed January 16, 2004, Applicants respond to the points raised by the Examiner and request entry of this amendment as it does not raise new issues and merely responds to the newly cited reference (Nicosia et al.).

Applicants appreciatively acknowledge the indication of allowability of claim 15.

Claims 2-4 were rejected as being indefinite under § 112, paragraph 2 rejection. Claim 1 has been amended to restore the original claim phrase "prescribed criterion," thereby rendering this rejection moot. Entry of this previously considered claim language is requested.

All claims stand rejected as being either anticipated under 102(e) or obvious under 103/102(e) in view of Nicosia et al. Applicants traverse this rejection for the following reasons.

There is one independent claim in this application, which recites a substrate configured "to optimally radiate pressure waves at a prescribed frequency that mimics the heartbeat of an animal." The Nicosia et al. operates under an entirely different principal and does not disclose or suggest a substrate that satisfies the recited prescribed criterion. Instead, the Nicosia et al. patent teaches a deformable substrate incapable of radiating pressure waves in the claimed range of frequencies.

More particularly, Nicosia et al. acknowledge, explicitly, that:

The vibratory disturbances [used in their invention] are nothing like those propagated by a "woofer" speaker intended to develop sound and, indeed, the same oscillations, when coupled to the air by a loudspeaker, are believed to have no insect attracting ability whatsoever.

Col. 10, lines 29-33. The Examiner cites to a portion of the Nicosia et al. patent wherein an embodiment is described as imparting the "signature" characteristics of animal skin as
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vibrational motion or traveling waves to a “deformable” surface. However, a deformable surface contrasts sharply from a substrate that, like a loud speaker, radiates pressure waves by linearly pushing across its surface a waveform provided by a driver. Nicosia et al. do not attempt to vibrate the air to make sound and, as quoted above, their surface would not achieve that result.

This can be appreciated, in part, from Nicosia et al.’s teaching that the deformable substrate can be “plastic, rubber or paper” (col. 11, lines 60-61). In contrast, applicants have found that rubber and paper are not suitable for use and are not included in the scope of the claimed substrate as they fail to meet the claimed prescribed criterion. Moreover, applicants have further found, surprisingly, that a specific structural relationship (which is lacking in Nicosia et al.’s skin-emulating deformable surface) permits the optimal radiation of pressure waves in the frequency range of interest, namely, those that mimic the heartbeat of an animal. Nicosia et al. is not even concerned with this range of frequencies, but rather has as a preferred range 5-50 Hz (col. 10, lines 7-10).

The distinctions over Nicosia et al. can be further appreciated from the following excerpts which show, unequivocally, that the positional and thermal signatures that Nicosia et al. are emulating have no relationship to sound.

The present invention is organized about the concept of simulating simple physical effects produced and transmitted by the skin of living animals. (2: 30-32)

These effects may be a consequence of the slight motions, vibrations, and heat variations produced by the circulatory systems, the musculature, and viscera beneath the skin of prey animals. These motions and variations are readily detected by the insects as part of their repertoire of prey-finding capabilities. (2:50-54)

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By "positional signature" is meant the slight displacement of the skin surface due to the activities beneath, which may include localized pulsing or throbbing due to blood flow, more general movements due to voluntary or involuntary motions of the muscles or viscera, and vibrations generated by a living, breathing animal. . . . ***The positional signature is poorly coupled acoustically to the surrounding air and does not generate acoustical vibrations detectable above thermal noise.*** The insects may detect positional signature by means such as detection of air displacements or reflection of sound of their own wing beats. (3:24-29; 3:36-38)

When an attractor supplying these signatures is in use, the individual insects can be seen to approach in a characteristic "splayed-out" or "open" flying configuration, and respond to details of the underlying pattern during approach and specifically to align themselves with features corresponding to physical effects appearing at the skin surface when positioning themselves to bite. (3:58-65)

It will be appreciated by those skilled in the art that ***the function of the slow-wave or vibratory transmitting system is not to produce sound, as in a conventional loudspeaker, but rather to produce subtle deformations and displacements of the skin-like surface 72 which are readily detectable at a distance by the insects.*** The detection of such surface deformations by insects is accomplished by complex means which is taken advantage of by the devices disclosed herein, such devices being designed to develop an effective imitation of a living animal's skin or "signature". (9:58-67)

It will be appreciated by those skilled in the art that the coupling of the vibrations to the air is very inefficient. There is evidence of some small air displacement waves (slow-traveling pressure waves) but, ***for the most part, the device operating in accordance with the present invention generates no detectable energy above random background being propagated as sound proper,*** where sound is defined as alternate rarefactions and condensations being propagated at the characteristic velocity for the sound carrying medium (e.g. 1100 ft/sec. for air). Indeed, the amplitude of the oscillations of surface 72 are quite small, typically less than 10 microns in amplitude. These surface oscillations can barely be seen in light beams bouncing off the surface and can barely be felt when the surface 72 is lightly held in the fingertips. The velocity of the traveling waves generated by the device of the present invention is preferably on the order of 10-100 feet per second. ***The vibratory disturbances are nothing like those propagated by a "woofer" speaker intended to develop sound and, indeed, the same oscillations, when coupled to the air by a loudspeaker, are believed to have no insect attracting ability whatsoever.*** (10:13-33).

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Although many components have been described to create the insect attracting device of the present invention, the key feature of the device is to simulate the patterned temporal and spatial "signature" of prey animal skin in sufficient detail to attract insects. (13:8-12)

Nicosia et al. describe insect behavior from a fascinating perspective (emulating the flexible deformation and movement of skin), but it is a point of view that does not embrace the use of substrates that are configured to optimally radiate pressure waves for generating heartbeat-like sounds. It is also at a frequency range that is said to be preferably 5-50 Hz (col. 10, lines 7-10), whereas the heartbeat of an animal resides in the 200-500 Hz range. Further, Nicosia utilizes a complex, multilayered surface to achieve their objective whereas the claimed invention is a disposable member that more simply is constrained only in that its structure must conform to a basic mathematical criterion.

The teachings of Nicosia et al. do not apply to the claimed invention; there is no basis to conclude that the material generally mentioned in Nicosia et al. as possibly being plastic instead of paper or rubber satisfies the requirements of Fig. 7 in the frequency range that we have claimed; accordingly, there can be no anticipation or obviousness of the claims now pending.

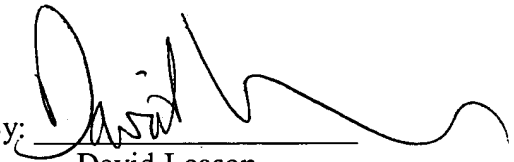
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Reconsideration and allowance of all claims is now believed to be appropriate. A prompt and favorable action is earnestly solicited.

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Respectfully submitted,

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